

Having thus described the invention, we now claim:

5 1. A method of generating a show-through pattern on a duplex-printed document through selective disposition of halftone patterns on opposite sides of the document comprising steps of:

printing a first image on a first side of the document in a first halftone pattern; and,

10 printing a second image on a second side of the document in a second halftone pattern wherein the first and second halftone patterns are disposed to form a recognizable marking distinct from the first and second images upon illumination from a show-through light source.

15 2. The method as described in claim 1 wherein the said recognizable marking is produced through a local phase shift of printed halftone dots.

20 3. The method as defined in claim 2 wherein the first and second halftone patterns are obtained by utilizing a first and a second clustered halftone screen of substantially the same halftone-dot frequency wherein the second halftone screen incorporates a phase shift in dot pattern in the shape of the said recognizable marking.

25 4. The method as claimed in claim 3 wherein the phase shift in the second halftone screen comprises a shift of 180° over the embedded watermark pattern.

5. The method as defined in claim 4 wherein the watermark comprises significant local variation in brightness resulting in a pattern clearly visible to the human eye.

30 6. The method described in claim 1 wherein the said recognizable marking is produced through a local frequency shift of the printed halftone dots.

7. The method as defined in claim 6 wherein the first and second halftone patterns are obtained by utilizing a first and a second clustered-dot halftone screen and the second halftone screen incorporates a frequency shift in dot pattern in the shape of the said recognizable marking.

8. The method as defined in claim 7 wherein the recognizable marking comprises a variation in moirée pattern.

9. The method described in claim 1 wherein the said recognizable marking is produced through a local angle shift of printed halftone dots.

10. the method as defined in claim 1 wherein the printings comprise a color printing.

11. A duplex-printed document having a show-through watermark comprising a selective overlay between a first image on a first side of the document and a second image on a second side of the document wherein the images comprise halftone dots relatively adjusted for forming the watermark upon illumination from a show-through light source.

12. The document as claimed in claim 11 wherein the watermark is produced through a local phase shift of the halftone dots between the first and second sides of the document.

13. The document as claimed in claim 11 wherein the second image adjustment comprises angle or frequency shifting between the first and second images.

14. A printing apparatus for duplex printing a document having a show-through watermark comprising first and second images on opposed sides of the document wherein the images comprise halftone dot patterns for forming an associated overlay pattern between the first and second images, resulting in a

recognizable pattern comprising the watermark, upon illumination by a show-through light source, and wherein the watermark is unrecognizable from either images alone upon illumination by a front light source.

5 15. The printing apparatus as defined in claim 11 wherein the halftone dots are relatively shifted by at least one of phase, angle or frequency.

 16. The printing apparatus as defined in claim 11 wherein the watermark is primarily recognizable in a reasonably large and relatively uniform area
10 of overlap between the first and second images.

 17. A method of duplex printing a document for forming a show-through watermark thereon upon back-lit illumination comprising steps of:
 printing a front pattern on a front side of the document; and,
15 printing a back pattern on a back side of the document disposed for interacting with the front pattern in the back-lit illumination to produce a recognizable marking, wherein the marking is not recognizable upon only front-lit illumination.

 18. The method as claimed in claim 17 wherein the interacting
20 comprises at least one of phase, frequency or angle shifting of halftone dot patterns